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In preparing maps of atmospheric pressure for Oct., 1900, to March, 1904, Mecking introduced principally observations made on board ships. He disposed of approximately 600,000 individual observations. Then, of course, the observations made in Argentina, Chile, Cape Colony, Australia and New Zealand as well as the simultaneous observations of the German Antarctic Expedition were utilized. He divided the observations made at sea into quadrangles and deduced the monthly means. In most cases his isobars do not go farther than 50°S., except south of Cape Horn where the necessary connection with the data of the Antarctic stations could easily be obtained. The immediate result of this closer connection was the discovery of two important centers of action of atmospheric circulation, situated one over Belgica Sea, the other over Weddell Sea. From the discussion it is evident that these centers of action play as important a rôle in Antarctic and South American meteorology as the Icelandic and Northern Pacific centers of action upon the weather conditions of North America and Western Europe.

Mecking's discussion is most suggestive and the principal conclusion to be drawn from his very minute and far-reaching study is certainly that we can not be satisfied with such imperfect polar cooperative work as that done during 1901-1904. Meinardus and Mecking, in this monumental meteorological work, have not restricted themselves to well-established facts, but have had the courage to advance into the field of working hypotheses, opening at the same time the way to new researches and to new discoveries.

HENRYK ARCTOWSKI.

#### THE WORLD AND PARTS OF IT

**In der Tropenwelt.** Von Dr. Carl Holtermann. v and 210 pp. Ills., index. W. Engelmann, Leipzig, 1912. Mk. 5.80. 9½ x 6½.

This book treats, very adequately for the general reader, the most representative features of tropical vegetation and the conditions under which the floras develop. In the section on the mangrove, for example, the influence of tropical sea water upon the development of this form of vegetation is sketched. The epiphytes, palms, desert plants, tropical alpine growths, tropical fruits, condiments, tea, coffee, rice, opium and hashish are most prominent among the plants discussed.

#### PHYSICAL GEOGRAPHY

**Zur Geschichte und Theorie des Vulkanismus.** Von Dr. Karl Schneider. 113 pp. J. G. Calve, Prag, 1908. 10 x 7.

A good reference work on the history of volcanism. In the first part the author characterizes the theories held by various scientists: Varenus, Kircher, v. Buch, v. Humboldt, Poulett-Scrope, Lyell, Naumann, Suess, Branco, Geikie, Stübel, and others; in the second he develops his own opinions on the subject. Taking the interior of the earth as a solid but plastic mass, which a lessening of pressure may change into a liquid or gaseous condition, every disturbance of the equilibrium subsequent to variations of the density of the crust or of the intensity of gravity in the latter must produce a readjustment of the masses which allows the magma to penetrate to the surface. Hence volcanism always appears in connection with tectonic changes, but neither as the cause nor the effect of them, and is most frequent between the tropics because there the centrifugal tendency of the magma is strengthened by that of the equatorial parts of the globe.

Three phases can be distinguished in the character of the eruptions of any volcanic region, which, while sometimes overlapping, regularly succeed one another: the ejection of lava, of ashes (tufa) and of gas. Illustrating these phases by means of examples from Iceland, Italy and the central plateau of France, the author shows that in our present geological period the second phase predominates, with a few relapses into the first (Iceland, Hawaii) and some anticipations of the third (Mt. Pelé). These changes of volcanic intensity are due to the nutation of the earth's axis which disturbs the equilibrium of the masses both in the interior and the crust.

M. K. GENTHE.